CLAIMS:

1.   A tuning system for receiving a radio frequency input signal included in a
frequency range the range having a plurality of non-overlapping bands, a maximum
frequency and a minimum frequency, the tuning system comprising a voltage-controlled
oscillator controlled by an analog signal and a first binary signal and being characterized in
5   that the analog signal is inputted to a window comparator, said comparator having a low
threshold which is indicative for the minimum frequency and a high threshold which is
indicative for the maximum frequency.

2.   A tuning system as claimed in claim 1, wherein the window comparator
10   generates a signal that is inputted to a controller, for generating the first binary signal to
digitally control an output frequency of the voltage-controlled oscillator.

3.   A tuning system as claimed in claim 2, wherein the controller further generates
a second binary signal that is inputted to a frequency divider for determining a division factor
15   of a periodical signal generated by the voltage-controlled oscillator.

4.   A tuning system as claimed in claims 2 or 3, wherein the controller further
comprises a local memory for storing a binary representation of the frequency range and of
each of the bands included in the frequency range.
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5.   A tuning system as claimed in claims 3 or 4 further comprising a phase –
locked loop, the phase - locked loop including a phase detector coupled to the frequency
divider, the phase detector generating an error signal that is proportional to a phase difference
between a phase of a reference periodical signal and a phase of a signal generated by the
25   frequency divider, the error signal being inputted to a compound bloc comprising a charge
pump coupled to a loop filter, the compound bloc generating the analog signal.

6.   A tuning system as claim in claim 1, wherein the window comparator
comprises a first differential comparator and a second differential comparator, the first

differential comparator generating a first signal having a first binary value whenever the analog signal is bigger than the high threshold, the second differential comparator generating a second signal having a second binary value whenever the analog signal is smaller that the low threshold.

7.   A tuning system as claimed in claim 1, wherein the voltage-controlled oscillator comprises a plurality of capacitors coupled respectively to a plurality of switches, a state of said switches being controlled by the first digital signal.

8.   A tuning system as claimed in claim 3, wherein the window comparator comprises a first differential comparator and a second differential comparator, the first differential comparator generating a first signal having a first binary value whenever the analog signal is larger than the high threshold, the second differential comparator generating a second signal having a second binary value whenever the analog signal is smaller that the low threshold, wherein the voltage-controlled oscillator comprises a plurality of capacitors coupled respectively to a plurality of switches, a state of said switches being controlled by the first digital signal and the first digital signal comprises a plurality of binary signals each of the binary signals controlling a respective switch, a tuning method further comprising steps of:

1. Setting all the switches in an OFF state so that the first digital signal = 00... 0;

2. Modifying the second binary signal sequentially until the first signal is HIGH;

3. Setting all the switches in an ON state so that the first digital signal = 11... 1;

4. Modifying the second binary signal sequentially until the second signal is HIGH;

5. Setting the first binary signal = 00... 1;

6. Adjusting the second binary signal till the first signal becomes HIGH;

7. Adjusting the second binary signal till the second signal becomes HIGH;

8. Storing the second binary signal codes in memory of the controller;

9. Modifying the first binary signal to the next value; and

10. Repeating steps 6 to 9 until all possible values of the first digital signal are used.

9.   Use of the tuning method claimed in claim 8 for quality control of the tuning systems having a VCO controlled by an analog signal and a binary signal in a manufacturing process and for quick locking on a frequency of an external signal in an exploitation process.